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In two sections of a world history class, 43 sixth graders, all considered competent readers, participated in two sets of tasks. First, they used a familiar textbook to locate the answers to six questions, all of which contained terms that could be found in the book's index. Second, they participated in a report-writing project in which they were asked to generate research questions, locate information to answer those questions using multiple sources, take notes, and write a research report conforming to their teacher's expectations. Despite being competent readers, who had instruction relevant to finding information and who had completed several reports during the year, these students exhibited a wide range of performance and many difficulties. The results are discussed in relation to their implications for helping children develop independent, flexible strategies for finding and using information. (Contains 20 references.) (Author/RS)

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ED 384 014

Sixth-Grade Researchers: Posing Questions, Finding Information, and Writing a Report

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READING RESEARCH REPORT NO. 40
Summer 1995

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National Reading Research Center

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Mariam Jean Dreher
University of Maryland College Park

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Summer 1995

The work reported herein is a National Reading Research Project of the University of Georgia and University of Maryland. It was supported under the Educational Research and Development Centers Program (PR/AWARD NO. 117A20007) as administered by the Office of Educational Research and Improvement, U.S. Department of Education. The findings and opinions expressed here do not necessarily reflect the position or policies of the National Reading Research Center, the Office of Educational Research and Improvement, or the U.S. Department of Education.

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The National Reading Research Center (NRRC) is funded by the Office of Educational Research and Improvement of the U.S. Department of Education to conduct research on reading and reading instruction. The NRRC is operated by a consortium of the University of Georgia and the University of Maryland College Park in collaboration with researchers at several institutions nationwide.

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National Reading Research Center
Universities of Georgia and Maryland
Reading Research Report No. 40
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Sixth-Grade Researchers: Posing Questions, Finding Information, and Writing a Report

Mariam Jean Dreher
University of Maryland College Park

Abstract. *Forty-three sixth graders, all considered competent readers, participated in two sets of tasks. First, they used a familiar textbook to locate the answers to six questions, all of which contained terms that could be found in the book's index. Second, they participated in a report-writing project in which they were asked to generate research questions, locate information to answer those questions using multiple sources, take notes, and write a research report conforming to their teacher's expectations. Despite being competent readers, who had had instruction relevant to finding information and who had completed several reports during the year, these students exhibited a wide range of performance and many difficulties. The results are discussed in relation to their implications for helping children develop independent, flexible strategies for finding and using information.*

Reading to locate information is a common school and workplace expectation (Dreher, 1993). In the workplace, adults spend more time reading to locate information than reading for any other purpose (e.g., Guthrie, Seifert, & Kirsch, 1986; Kirsh & Guthrie, 1984; Mikulecky, 1982). In school, students are expected to engage in tasks such as skimming stories to locate facts, finding definitions for new words in glossaries, and searching for information for report writing. Research on adults indicates, however, that reading-to-locate performance leaves much to be desired once tasks move beyond something simple such as looking up a fact that can be accessed through an index (e.g., Dreher, 1992; Dreher & Brown, 1993; Dreher & Guthrie, 1990; Guthrie & Dreher, 1990; Symons & Pressley, 1993).

Similarly, research on school children indicates that many have great difficulty with seemingly easy reading-to-locate-information tasks. A number of studies (Cole & Gardner, 1979; Kobasigawa, 1983; Neville & Pugh, 1975; Wray & Lewis, 1992) indicate that children often fail to think of and apply what they have been taught about locating information. Dreher and Sammons (1994), for example, found that success rate was just over 30% when fifth-graders (all reading at least at grade level) were asked to use a textbook to locate the answers to questions, all of which contained terms that could be looked up in the

index. Many did not think to use the index. Even those who did often looked up inappropriate terms or had trouble with alphabetical order. Unsuccessful children typically tried to locate the answers to these very specific questions by using the table of contents or paging through the text. Yet these students had been taught about indexes and other information access features, and they could generally find the index and other features and explain their use when asked to do so.

Despite such difficulties, children are not only expected to find information, but also to write reports. To extend our knowledge about the problems children have in locating information and to identify potential solutions to the problems, the current research first examined sixth graders' performance on tasks similar to those used in earlier work with fifth graders (Dreher & Sammons, 1994). The fifth-grade data were collected near the beginning of the school year. In the current study, baseline data were obtained on end-of-the-year sixth graders' success at finding answers in a textbook. Thus, the object was to obtain developmental data on success rate after almost two years of additional schooling. Second, the current study analyzed the performance of these sixth graders as they formulated research questions, searched for information in multiple, self-selected sources, took notes, and wrote reports. Because we already know that "poor" readers have many problems, this study focused on students whose teachers considered them able to read at least "at grade level." The purpose was to identify instructional needs related to posing appropriate questions, locating the information to answer the questions, and writing an adequate report.

Method

The participants were 43 sixth graders (22 girls and 21 boys) in two sections of one teacher's middle school world history classes. Four of these students were African Americans, 9 Asian Americans, and 30 European Americans. All these students had been rated as reading at grade level by their fifth-grade teachers (three other children who had been rated below grade level and six who had incomplete data due to absences were not included in the study). At the beginning of the school year, the sixth- grade teachers had taken the students through a unit about the features of their textbooks (e.g., contents, index, glossary, appendices) and other classroom resources. By the time this study was conducted in May, the students had completed a number of projects and reports in all their classes, including reports on ancient civilizations such as the Egyptians and Greeks. The school was in a solidly middle-class neighborhood, with some students bussed in from lower-income areas.

Baseline data on students' search performance were obtained by having students use their world history textbooks to locate the answers to six questions. These questions—all with stated-in-the-book answers—contained at least one key word that could be searched in the book's index, table of contents, and/or glossary (e.g., Who started special clubs called guilds? Which countries in Western Europe are often called the Low Countries?). Before answering each question, students rated how

much they already knew about the answer on a 4-point scale ("I know almost nothing about the answer," "I know a little about the answer," "I know quite a bit about the answer," "I am almost an expert on the answer"). The students had used this textbook periodically, along with other social studies materials, during the months that preceded this study; as noted above, at the beginning of the school year the students had participated in lessons designed to highlight this textbook's information-access features. The questions, however, were selected from chapters that had not been formally studied.

A week later, the students were asked to rate their prior knowledge about ancient Romans, the upcoming world history unit, on a 4-point scale ("I know almost nothing about them," "I know a little about them," "I know quite a bit about them," "I am almost an expert on them"). They also responded to an open-ended question on what they already knew about ancient Rome. The following day, they were given an overview of an in-class report writing activity which was conducted over five consecutive class meetings. This report-writing project began with a topic/source planning activity in which students were asked to generate four or five questions they might want to research about "everyday life in ancient Rome." After considering these questions, students were asked to select two or three of their questions on which they would write reports, and to plan what sources they might use to locate the information they needed.

After this planning session, students began their information collection. They were able to use the classroom or media center as they wished. In addition to the students' world history textbook, multiple copies of three short textbooks on ancient Rome were available in the classroom. The media center was well equipped with trade books, several sets of encyclopedias, and electronic catalog terminals. As students sought information, they kept a record of their efforts in notetaking packets. These packets had space for students to record the question they were seeking to answer, their notes pertinent to the question, and the source of the information. These packets also contained an end-of-the-day checklist on which students listed the sources they used. When students finished collecting information on their questions, they wrote their reports. They had been told at the beginning of the project that their reports would typically be two to three pages long, with an introduction, a conclusion and a multi-paragraph body addressing the questions they had researched. They were to comply with past practice in their classrooms (e.g., to use their own words). To supplement the documents produced by the students, research assistants recorded observations throughout the project.

Results

Baseline performance on the textbook search indicated a range of 25% to 100% accuracy. The mean proportion correct was .76 (SD = 0.22). The students reported almost no prior knowledge on the topics. However, performance on this task was most likely inflated due to numerous instances of copying neighbors when students thought the observers were not looking. This copying was most likely prompted by the obvious difficulty that many

students exhibited as they searched for answers to the questions (e.g., checking the list of maps at the end of the table of contents on a question that had nothing to do with a geographic location).

On the prior knowledge section of the report-writing task, five students reported that they knew "quite a bit" about the ancient Romans. The remaining students were equally divided in reporting that they knew "almost nothing" or "a little" about them. Their open-ended responses matched their ratings and ranged from children who said they knew nothing but were looking forward to learning about the Romans to children who listed a few facts they had learned from movies they had seen on television or from earlier studies (e.g., Nero burned Rome, Romans killed Christ, "they like feeding christiens [sic] to lions").

When asked to list questions they might want to research, the students had little trouble. Most listed five, with the range from four to eight. The questions included topics such as food, religion, clothing, houses, education, the military, gender roles, social classes, and entertainment. These questions were not always well worded but were generally appropriate, answerable questions (e.g., "What did the children do for entertainment?" "How did the government work?" "What do they wear?" "What do the men do that is different than the women?" "Do the kids go to school: If so what's it like?"). But 51% of the students listed at least one question that required only a yes/no or short-phrase answer (e.g., "Did they belive [sic] in gods or godesses?" "How many people could fit in the colleceaum [sic] in ancient Rome?"); when one of these questions was later addressed in a student's report, it was implicitly reworded (e.g., what was Roman religion like?).

When asked to highlight questions from their list that they would research, 70% selected three, 23% selected two. The remaining 3 students highlighted one, two, and five questions, respectively. Although the majority highlighted three questions, they did not usually take notes on all three. Fourteen percent took notes on none of their selected questions, 23% took notes on one of the questions, 42% on two, and 21% on three.

An examination of the students' original list of questions and the ones they ended up addressing in their reports indicated that most students adhered to their plans at least in part. In their reports, 16% of the students wrote on none of their highlighted questions, 23% wrote on one of their highlighted questions, 40% on two, and 21% on three. If the highlighting on the original list is ignored, then 93% of the students included at least one question in their report from their original list. However, 35% of the students had at least one question in their report that was not mentioned on their original plans whether highlighted or not. (Rephrasings and shifts to subordinate or superordinate versions of the originals were not considered new questions.) These new questions were on topics they happened upon or that a friend was working on.

Almost all the students wrote on two or three questions as they had been asked to do. But 4 students reported on only one question. These 4 appeared to have used a length criterion; when they thought they had written quite a bit, they decided one question was enough. In addition, 8 of the students who wrote on two

or three questions, can be considered to have, in effect, answered only one question. They too seemed to use a length criterion by answering one question fairly well and dispensing with the other in a sentence or two. The other students distributed the amount of report space to each of their questions rather evenly.

The quality of the students' reports ranged widely. One report made little sense; it consisted of approximately two disjointed sentences on each of several topics copied seemingly at random from the source. Four reports were very short mentions of two or three facts on each of two or three questions. But most students tried to address at least one of their questions in a fairly complete manner. Nine of the reports featured at least one elaborated answer. Unfortunately, however, 51% of the reports contained obvious copying of a paragraph or more from the source text.

Students were expected to use multiple sources for their information and to cite the sources at the end of the paper. Most listed two (40%) or three (28%) sources in their reports. Their reports and observations indicated heavy reliance on the short, Ancient Rome textbooks that were available in the classroom—78% listed one or more of these texts. Sixty percent listed one or more library books and 46% cited one or more encyclopedia articles. Although many students cited more than one source as required, most of the information in the report came from the short textbooks on Rome.

Most students tried to comply with the structure the teacher had specified—an introduction, multiple paragraphs, and a conclusion. Seventy-seven percent had all three structures and another 16% had all but the conclusion. The remaining 7% had neither an introduction nor a conclusion. In their introductions, almost all the children made an attempt to introduce the questions they planned to write about in the report. For example, one child wrote, "In this report I'm going to tell you what the Romans did for fun. I'll also tell you how the Romans dressed for everyday life. You'll also learn about what an adverag [sic] Roman house is like. I hope you enjoy my report and learn something too." Similarly, another student began by stating, "In the past week or two my classmates and I have been answering our questions about Ancient Rome. The two questions I asked myself were what type of government did Ancient Rome have and who are some famous Romans."

Just over 40% of those who wrote conclusions basically said that they hoped we learned a lot and liked their reports (e.g., "I hope you enjoyed my report. I know I learned alot [sic] about this interesting place"); the others went a bit further, making a stab at a summary by restating what their topics had been (e.g., "I learned a lot from this report. I learned how the Romans dressed and what cosmetics they used. I learned about the Romans [sic] houses. I also learned about what the ancient Romans ate. I found out things I never knew before. In my opinion, this report was very interesting.").

Discussion

Although the students were all considered at least grade level readers, they exhibited a considerable range in performance on the baseline task of locating information in a textbook. But their mean performance was

fairly high, and was considerably higher than the mean success rate for similar students at the beginning of fifth grade (Dreher & Sammons, 1994). Thus, students do make progress in unprompted application of search-related knowledge. But even on this straightforward task, many of these at-least-at-grade-level readers had obvious difficulty and resorted to copying their neighbors, something the fifth graders could not do because they were tested individually. This obvious difficulty was apparent even though these students used a familiar textbook, and even though they had had a beginning-of-the-year orientation on information-access features that their teachers thought they would remember.

On the report-writing task, these students demonstrated that they could generate generally appropriate questions and follow through to write a report on at least some of them. But there were some difficulties in question formation evidenced by the occurrence of a considerable number of questions that could be answered with one word. In addition, it was not uncommon for good questions to be dropped along the way and replaced by a topic the student happened upon or that a friend suggested. Although switching questions is not in itself a bad thing, the reasons for switching were not usually to get a better topic but because it was easier to switch than to find the information that they originally wanted. Observations indicated, for example, that one student persisted in looking for information on his topic on three consecutive workdays; but his persistence was rare. Although many factors enter into persistence, difficulty finding information was certainly one factor.

These students generally adhered to the required report structure and to the requirement of citing more than one resource, but the conclusions were typically content-free. In addition, although more than one source was usually cited, often only one source was actually used. Typically, there was heavy reliance on the short, easy-to-read Ancient Rome textbooks that were available in the classroom. Part of the reason for this reliance may have been that one of these books is all students needed to get enough information to comply with the task. Furthermore, some students wasted so much time chatting during the work sessions that they only had time to grab quick answers; but other reasons may enter into this reliance. For example, although these were capable readers, and although many did look at multiple sources, observations indicated that they found it difficult to integrate information across sources. They also had trouble locating information in longer books and in encyclopedia articles. The short chapters on a single topic in the Ancient Rome textbooks meant that students could use the table of contents to access information instead of techniques that were more difficult such as using indexes in longer books and locating and skimming an encyclopedia article.

The content of the reports was often superficial, and quite often was obviously copied. Observations indicated that students knew they were not supposed to copy; they were overheard reminding each other and asking questions such as how a list could be put into one's own words. But many just did not quite know how to avoid it, and others made no attempt not to copy. Moreover, a number of students stopped with one question in their reports or

wrote an elaborated response on only one question with a sentence or so for the others.

These students were at least adequate readers in a good school who had had instruction relevant to finding information, and who had completed several reports during the year. Yet the process of posing questions, locating information and writing a report was rather challenging for them. In most of their previous report writing experiences, they had had considerable help from the teacher or worked in groups in which stronger students took the lead. Indeed, previous reports were often taken home where parents helped. In the current study, they could and did ask for help but they were encouraged to do it themselves, and the entire project was done at school. Under these conditions, automatic application of skills they had been taught was not always evident.

Thus, as in related research with children, the question arises of how best to help students develop independent, flexible strategies for finding and using information. Teachers' manuals and curriculum guides include research related instruction (e.g., Armbruster & Gudbrandsen, 1986). Furthermore, students such as those in the current study have been exposed to research-related instruction—that fact is obvious in that they and students in similar studies can answer questions about information-access features, can pass tests on such features, and can often use such features when prompted (even if they do not do so spontaneously) (e.g., Cole & Gardner, 1979; Dreher & Sammons, 1994; Kobasigawa, 1983; Neville & Pugh, 1975; Wray & Lewis, 1992). However, if large numbers of students are to produce the kind of reports we would really like to see, we need to do more than produce what is often inert knowledge (e.g., Bereiter & Scardamalia, 1985; Brown & Campione, 1981). We need to teach information-seeking strategies by providing systematic guided practice in a meaningful context so that children are more likely to transfer their verbal knowledge to usable strategies. In particular, a problem like massive copying of the original sources or giving up when information is not found on a first try is not solved by simply telling students not to do it. Thus, research is needed on improving instruction related to locating and using information. Rather than teaching research-related skills out of context as is typically the case, a productive approach may be to examine search strategy instruction that is integrated with the demands of inquiry-based content-area projects (e.g., Blumenfeld et al., 1991; Brown, 1992; Dreher, 1995).

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